

Amendments to the Claims:

This listing of Claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-33 (Cancelled)

34. (New) A process for producing a silane-crosslinked thermoplastic polyolefin comprising:

a. providing a mixture of:

(i) at least one silane possessing an unsaturated organic function;

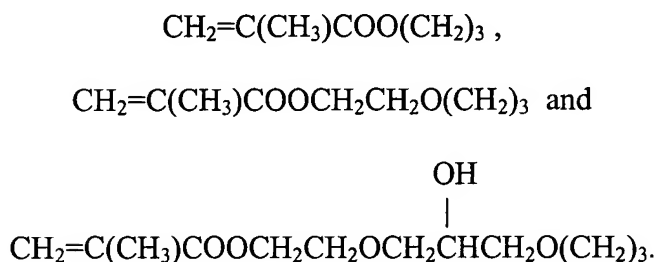
(ii) at least two free radical initiators, the first initiator having a first half-life temperature and the second initiator having a second half-life temperature being higher than said first half-life temperature;

(iii) at least one thermoplastic polyolefin wherein the thermoplastic polyolefin is at least one polyolefin selected from the group consisting of high-pressure low-density polyethylene, medium/low-pressure high-density polyethylene, low-pressure low-density polyethylene, medium-density polyethylene, an ethylene- α -olefin copolymer, polypropylene, an ethylene-ethyl acrylate copolymer, an ethylene-vinyl acetate copolymer, an ethylene-propylene copolymer, an ethylene-propylene-diene terpolymer, an ethylene-butene copolymer, polymethyl-pentene-1, polybutene, chlorinated polyethylene, an ethylene-vinyl acetate-chlorine terpolymer, and mixtures thereof; and,

b. reacting the mixture of step (a) under reactive mechanical-working conditions and exposure to moisture to provide crosslinked polyolefin.

35. (New) The process of Claim 34 wherein the silane possesses the general formula $RR'SiY_2$ wherein R represents a monovalently olefinically unsaturated hydrocarbon or hydrocarbonoxy radical, each Y represents a hydrolysable organic radical and R' represents an R radical or a Y radical.

36. (New) The process of Claim 35 wherein the R radical is selected from the group consisting of vinyl, allyl, butenyl, cyclohexenyl, cyclopentadienyl, cyclohexadienyl,



37. (New) The process of Claim 35 wherein the group Y represents a hydrolysable organic radical selected from the group consisting of alkoxy radicals, acyloxy radicals, oximato radicals and amino radicals.

38. (New) The process of Claim 35 wherein the silane is vinyl triethoxysilane and/or vinyl trimethoxysilane.

39. (New) The process of Claim 34 wherein the 0.1 hour half-life temperatures of the first free radical initiator is from about 80° to about 160°C.

40. (New) The process of Claim 34 wherein the 0.1 hour half-life temperatures of the first free radical initiator is from about 90° to about 155°C.

41. (New) The process of Claim 34 wherein the 0.1 hour half-life temperature of the second free radical initiator is from about 125° to about 190°C.

42. (New) The process of Claim 34 wherein the 0.1 hour half-life temperature of the second free radical initiator is from about 140° to about 170°C.

43. (New) The process of Claim 39 wherein the first free radical initiator is selected from the group consisting of di(2,4-dichlorobenzoyl) peroxide, tert-butyl peroxyvalerate, dilauroyl peroxide, dibenzoyl peroxide, tert-butyl peroxy-2-ethylhexanoate, 1,1-di(tert-butylperoxy)-3,3,5-trimethylcyclohexane, di(tert-butylperoxy)cyclohexane, tert-butyl peroxy-3,5,5-trimethylhexanoate, tert-butyl peroxyacetate, tert-butyl peroxybenzoate, di-tert-amyl peroxide, dicumyl peroxide, di(tert-butylperoxyisopropyl)benzene and 2,5-dimethyl-2,5-di(tert-butylperoxy)hexane.

44. (New) The process of Claim 41 wherein the second free radical initiator is selected from the group consisting of tert-butyl peroxyacetate, tert-butyl peroxybenzoate, di-tert-amyl peroxide, dicumyl peroxide, di(tert-butyl-peroxyisopropyl)benzene, 2,5-dimethyl-2,5-di(tert-butylperoxy)hexane, tert-butyl cumyl peroxide, 2,5-dimethyl-2,5-di(tert-butylperoxy)hexyne-3 and di-tert-butyl peroxide.

45. (New) The process of Claim 34 wherein mixture (a) further includes at least one additional component selected from the group consisting of catalysts, stabilizers, fillers, antioxidants, processing aids, oils, plasticizers, pigments and lubricants.

46. (New) The process of Claim 45 where catalyst is a metal carboxylate, an organic metal compound, an organic base, or an acid.

47. (New) The process of Claim 46 where metal carboxylate is dibutyltin dilaurate, stannous acetate, stannous octoate, lead naphthenate, zinc octoate, iron-2-ethylhexoate, or cobalt naphthenate.

48. (New) The process of Claim 46 where organic metal compound is a titanium ester or a titanium chelate.

49. (New) The process of Claim 48 where a titanium ester or a titanium chelate is a tetrabutyl titanate, tetranonyl titanate, or bis-(acetylacetonyl) di-isopropyl titanate.

50. (New) The process of Claim 46 where an organic base is ethylamine, hexylamine, dibutylamine or piperidine.

51. (New) The process of Claim 46 where an acid is a mineral acid or a fatty acid.

52. (New) A process for producing a silane-crosslinked thermoplastic polyolefin comprising:

a. providing a mixture of:

(i) at least one silane possessing an unsaturated organic function, wherein the silane possesses the general formula $RR'SiY_2$ wherein R represents a monovalently olefinically unsaturated hydrocarbon or hydrocarbonoxy radical, each Y represents a hydrolysable organic radical and R' represents an R radical or a Y radical and wherein the silane is vinyl triethoxysilane and/or vinyl trimethoxysilane;

(ii) at least two free radical initiators, the first initiator having a first half-life temperature and the second initiator having a second half-life temperature being higher than said first half-life temperature;

(iii) at least one thermoplastic polyolefin; and,

b. reacting the mixture of step (a) under reactive mechanical-working conditions and exposure to moisture to provide crosslinked polyolefin.

53. (New) The process of Claim 52 wherein the thermoplastic polyolefin is at least one polyolefin selected from the group consisting of high-pressure low-density polyethylene, medium/low-pressure high-density polyethylene, low-pressure low-density polyethylene, medium-density polyethylene, an ethylene- α -olefin copolymer, polypropylene, an ethylene-ethyl acrylate copolymer, an ethylene-vinyl acetate copolymer, an ethylene-propylene copolymer, an ethylene-propylene-diene terpolymer, an ethylene-butene copolymer, polymethyl-pentene-1, polybutene, chlorinated polyethylene, an ethylene-vinyl acetate-chlorine terpolymer, and mixtures thereof.

54. (New) The process of Claim 52 wherein the 0.1 hour half-life temperatures of the first free radical initiator is from about 80° to about 160°C.

55. (New) The process of Claim 52 wherein the 0.1 hour half-life temperatures of the first free radical initiator is from about 90° to about 155°C.

56. (New) The process of Claim 52 wherein the 0.1 hour half-life temperature of the second free radical initiator is from about 125° to about 190°C.

57. (New) The process of Claim 52 wherein the 0.1 hour half-life temperature of the second free radical initiator is from about 140° to about 170°C.

58. (New) The process of Claim 52 wherein the first free radical initiator is selected from the group consisting of di(2,4-dichlorobenzoyl) peroxide, tert-butyl peroxy-pivalate, dilauroyl peroxide, dibenzoyl peroxide, tert-butyl peroxy-2-ethylhexanoate, 1,1-di(tert-butylperoxy)-3,3,5-trimethylcyclohexane, di(tert-butylperoxy)cyclohexane, tert-butyl peroxy-3,5,5-trimethylhexanoate, tert-butyl peroxyacetate, tert-butyl peroxybenzoate, di-tert-amyl peroxide, dicumyl peroxide, di(tert-butylperoxyisopropyl)benzene and 2,5-dimethyl-2,5-di(tert-butylperoxy)hexane.

59. (New) The process of Claim 52 wherein the second free radical initiator is selected from the group consisting of tert-butyl peroxyacetate, tert-butyl peroxybenzoate, di-tert-amyl peroxide, dicumyl peroxide, di(tert-butylperoxyisopropyl)benzene, 2,5-dimethyl-2,5-di(tert-butylperoxy)hexane, tert-butyl cumyl peroxide, 2,5-dimethyl-2,5-di(tert-butylperoxy)hexyne-3 and di-tert-butyl peroxide.

60. (New) The process of Claim 52 wherein mixture (a) further includes at least one additional component selected from the group consisting of catalysts, stabilizers, fillers, antioxidants, processing aids, oils, plasticizers, pigments and lubricants.

61. (New) The process of Claim 60 where catalyst is a metal carboxylate, an organic metal compound, an organic base, or an acid.

62. (New) The process of Claim 61 where metal carboxylate is dibutyltindilaurate, stannous acetate, stannous octoate, lead naphthenate, zinc octoate, iron-2-ethylhexoate, or cobalt naphthenate.

63. (New) The process of Claim 61 where organic metal compound is a titanium ester or a titanium chelate.

64. (New) The process of Claim 63 where a titanium ester or a titanium chelate is a tetrabutyl titanate, tetranonyl titanate, or bis-(acetylacetonyl) di-isopropyl titanate.

65. (New) The process of Claim 61 where an organic base is ethylamine, hexylamine, dibutylamine or piperidine.

66. (New) The process of Claim 61 where an acid is a mineral acid or a fatty acid.